

### Abstract

The present invention provides a single-wafer hot-wall RTCVD system and method capable of achieving high deposition rates, preferably of up to and over 1000Å/min, to deposit silicon nitride films or layers ( $\text{Si}_3\text{N}_4$ ) using reactants including but not limited to  $\text{Si}_2\text{H}_6$  with  $\text{NH}_3$  at a low temperatures of up to approximately 550°C.